

CLAIMS

1. A receiver partially implemented on an integrated  
5 circuit chip, the receiver comprising:

means on the chip for receiving a plurality of channels  
of signals in a radio frequency telecast band;

a first mixer on the chip to which the television  
signals are applied;

10 a first bandpass filter off the chip coupled onto the  
chip to the output of the first mixer; the first filter having  
a first pass band;

a first local oscillator (LO) on the chip coupled to  
the first mixer, the first LO having a variable frequency;

15 means on the chip for adjusting the first LO to select  
one of the channels and shift the selected channel to the first  
pass band;

a second mixer on the chip to which the selected  
channel is applied after the first mixer;

20 a second LO on the chip coupled to the second mixer,  
the second LO having a fixed frequency that shifts the selected  
channel to an intermediate frequency; and

means for demodulating the selected channel.

25 2. The television receiver of claim 1, additionally  
comprising a second bandpass filter off the chip coupled onto the  
chip to the output of the second mixer; the second filter having  
a second pass band, the second LO having a frequency that shifts  
the selected channel to the second pass band.

30 3. The television receiver of claim 1, in which the  
receiving means, the first LO, and the ~~second~~ second LO have  
differential outputs, the first and second mixers have  
differential inputs and outputs, and the first bandpass filter  
35 has a differential input and a differential output.

1 36232/PBH/B600 (BP 1255)

4. An integrated receiver comprising:

5 a substrate providing a physical medium upon which a receiver circuit is disposed;

a first local oscillator;

a second local oscillator;

10 a mixer having its circuit elements disposed upon the substrate for converting a received signal to a first IF using the first local oscillator's output to mix the received signal with;

a first buffer amplifier having its circuit elements disposed upon the substrate cascaded after the mixer;

15 an external first differential filter assembly coupled to the first buffer amplifier output for removing an image distortion from the first IF and removing unwanted channels;

a second buffer amplifier having its circuit elements disposed upon the substrate coupled to the external first differential filter assembly output;

20 a first I/Q mixer disposed upon the substrate for converting the first IF to a second IF I and Q signal and rejecting a first IF image distortion;

a polyphase circuit for combining the second IF I and Q signals into a second IF signal;

25 a third buffer amplifier having its circuit elements disposed upon the substrate and cascaded with the polyphase circuit; and

30 an external second differential filter assembly coupled to the third buffer amplifier output for removing an image distortion from the second IF and removing unwanted channels;

whereby frequency conversion, channel selectivity and image rejection are performed on the integrated circuit.

5. The integrated receiver of claim 4 additionally comprising an AGC circuit having its circuit elements disposed

1 36232/PBH/B600 (BP 1255)

upon the substrate, cascaded after the external second differential filter assembly.

5

6. The integrated receiver of claim 4 additionally comprising a programable gain attenuator and LNA circuit having its circuit elements disposed upon the substrate, cascaded in front of the first mixer.

10

7. The integrated receiver of claim 4 wherein the substrate is silicon.

15

8. The integrated receiver of claim 4 wherein the substrate comprises devices fabricated according to standard CMOS processing.

20

9. The integrated receiver of claim 4 further comprising interconnection by differential signal transmission lines.

25

30

35